CAPACITY BUILDING OF ELEMENTARY SCHOOL FUNCTIONARIES FOR ENVIRONMENTAL EDUCATION THROUGH DISTANCE EDUCATION PROGRAMME –SARVA SHIKSHA ABHIYAN INTERVENTIONS

Hema Pant, Deputy Director, Regional Centre, NOIDA
Indira Gandhi National Open University, India
drhemapant@ignou.ac.in
+91 9810950662

Abstract

Environment Education (EE) is a process of making people aware of the world around and sensitizing them about the interdependence of life on earth. The educational process plays a major role to develop the appropriate knowledge, skills and values so that people can understand the problems and the ways in which human beings are altering the environment. EE has been an area of global concern for curriculum planners. The Tbilisi Conference, in 1977, established the objectives for EE internationally. The Indian Constitution enjoins the people to protect and improve the environment. The NPE, 1986 and subsequent curricular frameworks of National Council for Educational Research and Training (NCERT), emphasized environmental consciousness and its integration in the educational process. The Supreme Court of India in 2003 made EE a compulsory subject from class 1 -12, following which NCERT prepared the syllabus. Support for EE in schools in India is from the Ministry of Environment and Forests and Ministry of Human Resource Development and some NGOs.

To further strengthen the efforts for EE in schools, particularly at the elementary level, there is need to build the capacity of Master Trainers and Teachers at that level. DEP-SSA, IGNOU, is the national component for quality initiatives through Open and Distance Learning (ODL) for universalizing elementary education in the country. Its major objective is to strengthen the ongoing capacity building efforts of the elementary level functionaries in all states and union territories. The paper discusses some DEP-SSA interventions for effective application and utilization of ODL technology to infuse environmental awareness, values and skills in the in-service training programmes. Ultimately the teachers need to be empowered to infuse environment consciousness in their curricular transactions, so that the future citizens of the earth are sensitized and motivated to change their behaviors accordingly and arrest the ongoing damage.

Introduction

Today, the world is confronted with a grave environmental crisis. This can be attributed to depletion of natural resources, by human activity. Indiscriminate use of nature by human beings has resulted in environmental degradation and consequent problems like extinction of plant and animal species, ozone-layer depletion, global warming, to name a few. These problems are further aggravated by poverty, insanitation, food crisis, malnutrition etc. The life support system of planet earth is thus under threat. Unless steps are taken to check such unbridled environmental destruction, the life-forms including human beings would be under imminent danger of a major catastrophe or even extinction (Dash and Satpathy, 2007). Considering that the balance of the global ecosystem is endangered, there is need to inculcate the right values, attitudes and behaviour in human beings towards the environment and its resources. The human society needs to be sensitized and made aware about the environmental issues and work with commitment individually and collectively to address the current and impending problems (UNEP, 1976).

The onus of protecting the environment for the present and future generations rests with human beings alone. To achieve this, environment education is required, so that a workforce of enlightened people is created. Such a community of environment literate citizens can make informed decisions and take environment friendly actions. The importance of environment education has been accepted globally and now there is a shift from awareness and information to participation, involvement and problem-solving. In view of this, the United Nations in 2002 has proclaimed 2005-14 as the Decade of Education for Sustainable Development (Dash and Satpathy, 2007).

Genesis of Enviromental Education

Environment education which has emerged as a global concept is an ongoing lifelong process. As emphasized by the Tbilisi Conference (UNESCO-UNEP, 1999) environment education is regarded as a permanent process in which the individuals and the community gain awareness, knowledge, skills and determination to act individually and collectively to solve environmental problems. It is essential that people are made aware through education and training about protection and conservation of the environment. Palmer (1998:9) highlights the relevance of environment education in the present times. He recommends the use of both formal and non-formal education to provide the required training, skills and first hand experience in the area of EE. The seventies were called as the decade of EE, because during that period the world realized that environmental concerns and awareness could be spread only through a mass environment education programme. The concept of EE emerged form the Stockholm Conference organized by the UN in 1972. Recommendations of the Conference emphasized organization of 'formal' and 'mass' EE program. In response to this UNESCO-UNEP launched the International Environmental Education Programme (IEEP) in 1975 whose objective was to promote exchange of information, experience, research, curricula and international cooperation in the area of EE. Following this an International Workshop was held in Belgrade in 1975, which emphasised that EE should be lifelong, interdisciplinary, involve active global participation and foster values of local, national and international cooperation (UNESCO-UNEP: 1985). The Belgrade Charter 1975 formulated the framework of EE. An Intergovernmental Conference to consider EE was organized at Tbilisi, USSR, in 1977, by UNESCO and UNEP, resulting in the famous Tbilisi

Declaration. The Tbilisi Conference emphasized development of necessary skills, knowledge values, attitudes and understanding among individuals and social groups about the environmental problems. It also emphasized the pre-service and in-service training of teachers in EE. The basis of such training would be the preparation of teaching-learning materials, adoption of interdisciplinary approach and use of mass media to disseminate information (UNESCO-UNEP; 1985). The international community introduced the term 'Sustainable Development' in 1980, through the World Conservation Union (IUCN, 1980). There was a shift in the concept from EE to ESD through the famous Bruntland Report, called 'Our Common Future' in 1987. WCED (1987) defined Sustainable Development (SD) as "Development that meets the needs of the present without compromising the ability of the future generations to meet their own needs."

The UN Conference on Environment and Development (UNCED, 1992), famously known as 'Earth Summit' held at Rio-de-Janiero in 1992.endorsed the concept of Sustainable Development (Khoshoo, 1998) and the global environmental concern came into sharp focus. The Summit stressed reorienting education towards SD. This has been highlighted in Agenda 21 (chapter 36) of the report where it stresses on "Education, Awareness and Training" as crucial factors of public understanding.

In 1997 UN Commission for SD (CSD) drafted 21 tasks for education for SD. The educational dimension of SD has been brought to the forefront at several international meets like – UNESCO-ACEID Conference (UNESCO, 1998). Johannesburg meet, International Conference at CEE, Ahmedabad (2005) etc. The 8 Millennium Development Goals also have implications for Environmental Sustainability. Target 9 of

the declaration has stressed on countries to integrate the principles of SD into country policies and programmes.

Some research studies across the world have brought into sharp focus the need of education for SD. Dietmar and Katrin (2006) analyze the development of educational efforts to engage with ideas about the position of humans within the environment. The article argues that there is a remarkable parallelism between public discussion of environmental issues and their consideration in school teaching. A study describes the German BLK '21' programme (State-Federal States Commission for Educational Planning and Research Promotion [BLK]) which supported the introduction of ESD in schools from 1999 to 2004. It also highlights the growing in significance of ESD (de Haan, G., 2006). William Scot (2002), cites two main aims set for the School Curriculum in England as – to pass enduring values and help (learners) to be responsible, caring citizens. Education should develop in them an understanding and respect for the environments in which they live, through a commitment for SD.

A lot of discourse and debate has been recorded on the issues of SD. According to Hopkins (1998) education should be seen as a primary tool in the critical endeavor of attaining a sustainable future. In 1998 in an on-line colloquium on the future of EE in a postmodern world Sauvé, critiqued moves to reshape education such that SD is seen as the ultimate goal of human development, with education as instrumental to this end. The role of schools is integral to processes of thinking and learning about what might constitute appropriate futures, but its role must be limited, in this case helping future citizens now, and as their lives evolve. Jensen and Schnack (1994) explore such limits when they write:

…it is not and cannot be the task of the school to solve the political problems of society. Its task is not to improve the world with the help of pupils' activities. These activities must be evaluated on the basis of their education values and to educational criteria. The crucial factor must be what students learn from participating in such activities.

Role of Technology for Environmental Education of Teachers

The Okinawa Statement (2003) recognized that Science and Technology is vital for solving global problems and the central theme was transition to SD. The importance and role of Information and Communication Technology to bridge the digital divide is enunciated. Recent progress in ICT has become the driving force to bring about societal transformation and is also cited as the most effective way to attain SD.

Education has been cited as the key to development and progress by Aderinoye, Rard Ojokheta, K (2004). They consider it as essential to bring about changes in attitudes, values and behaviour, helping them to make informed choices about their present and future lives. Calvest (1986) opines that Distance Education helps extend the market for education to a clientele who have not been previously served.

The Commonwealth of Learning (COL) is addressing the concerns of environment sustainability, locally and globally. It provides support to institutions to improve the quality and impact of EE and maintains a library of resources and documents on the environment to help practitioners and educators. It is helping Institutions to develop specialized courses in Open and Distance Learning (ODL) format [www.col.org, 2006].

In India, for e.g., the Centre for Environment Education(CEE), Ahmedabad in partnership with COL has developed Green Teacher, one year Diploma Course on Environment

Education through DE. This course is being adopted by Open Universities and Teacher Education Institutes in India and by some countries in South Asia and Africa (COL, 2006).

Teacher educators in Australia have responded to the need to link environmental and development education and to raise the level of attention usually devoted to them in Teacher Education Programmes. The 'Environmental and Development Education Project for Teachers Education' has been the result. The project has involved 20 educators drawn from 11 Universities, Govt. Department and NGO's across Australia, in writing and finalising a set of 18, three hours workshop modules on environmental and Development Education for use in pre-service teacher education courses. These modules, published in the Project Manual, 'Teaching for a Sustainable World'; illustrate how environment education & development education are related and provide practical assistance for teacher educators who wish to include these important fields in their programmes. An intensive dissemination programme in 1993-94 involves workshops for all faculties of education in Australia.

ICT enabled Teacher Training Programmes through ODL can be a powerful source for creating a workforce of environmentally informed teachers. Advances in ICT can be utilized for environmental education by facilitating information gathering and dissemination. An NGO − World School Network (WSN) established in 1994, facilitates environmental education through ICT. Its activities are managed by an NGO, Ecoplus, which encourages schools and groups around the world to exchange reports and opinions on the Internet, thereby promoting environmental learning for school children. The objectives of WSN are:

- heighten children's interest in the environment.

- develop an outgoing attitude towards contributing to global society.

- provide opportunities to children to learn via global communications the interrelatedness of environmental issues.

- help children take initiative on environmental issue in their own communities.

- develop an international educational program for current environmental issues.

The global impact of WSN activities has resulted in network of 32 schools from Japan, 19 from the U.S. and 17 from other countries like France and South Africa, since 2003.

Education is the key in the process of achieving Sustainable Development. It liberates from oppression and ignorance, sharpens the mind and increases awareness (Alam,1998).The National Policy on Education – 1986 (MHRD, 1986), emphasizes that, "environmental consciousness should inform teaching in Schools and Colleges. This aspect will be integrated in the entire educational process." The Supreme Court of India in December 2003, has made EE as a compulsory subject at School and University level (NCERT, 2004).According to Parashar (1996), incorporating EE, in the education system, would pave the way for environment protection, keeping into focus the developmental needs of society. The educational institutions have to take a lead in this by stimulating and guiding sustainable use of natural resources. NCERT Curriculum Framework, 2005, suggests that EE curriculum for SD, should include skills, concepts and facts as already exists in the school curriculum, but in the context of local specific environment based curriculum with emphasis on learning the skills of collection, recording the analysis of information for decision making and social action shall go a long way in solving problems (Dash and Satpathy, 2007).Teachers being critical change

agents in the process of societal development can play a major role to bring about sustainable development. For this the curriculum of teacher education needs to be enriched to give them a clear understanding of the concepts of SD. This will enable teachers to play an active role in the developmental activities leading to societal progress and improvement in life styles of the community (Dash and Satpathy, 2007). A re-orientation of the Teacher-Training curricula, with a focus on active learning process is required. This implies a shift from content and predetermined learning outcomes to the concept of experiential learning and learner centric methods of instruction. The NPE (1986) points out the need to overhaul the Teacher education system in the country. NCERT (2005) Curriculum Framework highlighted the need to incorporate projects/activities, learning by doing and hands on experience to make teaching about environment most effective.

Teachers are potential change agents. They can be instrumental in promoting environment education among people, and develop in them critical thinking, analytical and problem solving skills. Both formal and non-formal channels of education and training through technology mediation can be employed to provide the learning experiences and appropriate skills. Since teachers play a major role in transforming the minds of their students, it is essential that their own knowledge understanding on environmental issues should be appropriate and adequate. The pre-service and in-service teacher training programs in the conventional and non-conventional system should incorporate the aspects of environmental education and education for sustainable development to sensitize the teachers and student teachers in this regard.

DEP-SSA Interventions for Capacity Building of Teachers

Teacher training is an important area in the Government of India (GOI)'s Sarva Shiksha Abhiyan (SSA) program for Universalizing Elementary Education (UEE) in the country. SSA emphasizes on quality training programs for large numbers of in-service and untrained elementary school teachers. IGNOU is the nodal agency for imparting quality training to all stakeholders of elementary education in the country. To this end DEP-SSA is carved out as a component within SSA under the overall leadership og IGNOU. The DEP-SSA endeavors convergence of all efforts for providing quality elementary education to all. The major focus is on:

- Need based and locale specific capacity-building of institutions and personnel at national, state, district and sub district levels.
- Providing technical support in designing, developing, and delivering distance learning materials, for training elementary school teachers and other functionaries
- Strengthening institutions by creating infrastructural facilities like Direct Reception Sites (DRS), Satellite Interactive Terminals (Downlink facilities) at the State Project Offices, and other training nodes even at the district levels.
- Orientation of teachers and teacher educators in EDUSAT activities and software development
- Providing technical and functional support in developing bridge-courses for out-of-school children and
- Monitoring SSA activities and their implementation through teleconferencing.

Since its inception, the mission for the Distance Education Programme under SSA is to develop policy guidelines and strategies to use educational technologies for the elementary school sector. Use of ICT is augmented for training of teacher and development of instructional materials on pedagogical and contextual issues.

The specific target groups covered by DEP-SSA are:

i). Elementary teachers (untrained, trained and para teachers).

ii). Teacher educators

iii). Block Resource Centre (BRC) and Cluster Resource Centre Coordinators.

iv). State and district functionaries

The capacity building and training of SSA functionaries is carried out by using distance learning inputs. It operates through a network of linkages with national institutions like IGNOU, NCERT, etc and State Level institutions for designing and development of distance learning materials. DEP-SSA provides technical support in the design, development and dissemination of DL materials, under the leadership of IGNOU.

Innovative use of technology is reflected in some endeavors of DEP-SSA, in the period from 2008-09. These are:

- Based on recommendations of National Curriculum Framework 2005, self-instructional training modules focusing on constructivist pedagogy are being developed in teaching of science and mathematics at upper primary level and English at primary level.
- Capacity building for development of audio-video scripts in content areas.
- Documentation of best practices (Activity Based Learning).
- Multimedia CDs prepared on English textbooks of primary classes for Goa state.
- Development of Media Resource Centre for documentation of DL inputs by DEP-SSA.
- Video recording and editing of Teleconferences for further use.
- Online training on wiki skills being imparted through zonal workshops.
- Multimedia publishing e-portal for sharing of best practices across schools in different regions and for online support to SSA functionaries.

The DEP-SSA, has created a state-level infrastructure for Distance Learning, and placed a coordinator in the states. They function as intermediaries between the MHRD, GOI and the States, and identify the needs of the state. Many of the States have developed their own infrastructure and are using educational technologies based on local needs. The states which have taken lead are Andhra Pradesh, Gujarat, Karnataka and Kerala.

DEP-SSA Initiatives for EE: Exploring the Possibilities

DEP- SSA can provide the platform for training teachers and other functionaries at elementary level to effectively incorporate environmental concerns and issues in their classroom transactions. The capacity building programs will empower teachers to engage their students in action oriented project based environment education activities. Involving students in such knowledge generation activities could lead to documentation of some important facets of the human and physical environment. Such an exercise will greatly enhance the quality of educational experiences which are still very authoritative and decreed by text books. The program will sensitize the teachers to the requirements of education for sustainable development whether in an infused manner or as a separate subject in school.

DEP-SSA can guide the states in their needs and chart a course for their development. Some steps that can be taken in this direction are (DEP-SSA, 2009),–

- DEP-SSA could sensitize the states about the potential of distance education for achieving EE objectives through teleconferencing and other modes.
- Exemplar` materials developed by DEP-SSA, in the area of environmental Studies (EVS) could be dubbed/translated into regional languages for use by the states.
- Workshops, seminars through teleconference / Face-to-Face mode could be organized for capacity building in development of audio-video scripts and designing content for other delivery platforms.
- States could be mapped to identify best practices in use of information communication technology for imparting EE in schools.
- DEP-SSA can establish linkages with other institutions and draw on experiences of other organizations for content development, marketing skills and utilization strategies at school level.
- Access and utilization to be ensured at all levels
- New technologies like mobile learning, e-learning should be explored and their utilization and impact in the school system could be done on project basis for imparting environmental concepts.

- Collaborative learning technologies like the DEP-SSA wiki could be effectively used for content generation in ESD and EE, which could be shared across the states in the country. The teacher educators/master trainers could develop training modules in the area and upload on the wiki. Multilingual wiki portal can be used for content generation in the local specific context.

The Challenges

India with a heterogeneous population (exceeding 1 billion) spread over a geographically diverse terrain faces enormous challenges in bringing about changes in the existing school teaching learning practices, which are still teacher- centric, examination oriented and based on rote learning. Use of ICT in education, particularly at school level is still a distant dream because its diffusion throughout India's multicultural, multilingual and multiethnic society is not uniform. Some of the specific constraints likely to be encountered in imparting ICT enabled EE are:

- Reorientation and continuous professional development of school teachers/functionaries towards a system which encourages students to observe and generate knowledge.
- Catering to the needs of a heterogeneous population which includes millions of teachers and students, operating under severe constraints.
- Need to link all efforts to local problems, concerns and issues through content generation in local language.
- Need for a paradigm shift embodying the spirit of science, democracy and caring for the environment
- Promote positive environmental actions in pursuit of environmental and sustainable development goals.

Conclusion

One of the most pressing concerns in the new millennium is the protection of the human habitat and the environment that nurtures it. Even as humanity moves towards the path of sustainable development there is need for a paradigm shift in its approach to education. The path is undoubtedly fraught with challenges in spite of the Supreme Court of India directives and consequent curricular frameworks, which render EE as a compulsory

component of syllabi at all levels of learning. In the context of teacher training there is need to strengthen the existing programs and reorient them to integrate ESD and EE in the curricular transactions. DEP-SSA can provide the training mechanism for teachers across the country through distance learning mode. Teacher educators at the State, district and block/cluster levels can operate in collaborative mode thereby constituting the state/district resource group for the purpose. ICTs can be harnessed to explore new possibilities to generate and share new knowledge in the area of EE.

REFERENCES

1.	**Aderinoye, R. and Ojokheta, K. (2004):**	'Open-Distance Education as a Mechanism for Sustainable Development: Reflections on the Nigerian Experience", International Review of Research in Open and Distance Learning, Vol: 5; no: 1.
2.	**CEE, India and COL Canada (2007):**	"Enabling SD through ODL, including Tech. MODE" Workshop 25-27 November, 2007 at the 4th International Conference on Environmental Education, CEE, Ahmedabad.
3.	**CEE, India (2005):**	'Ideas Experiences and Learnings in Educating for the Environment' in Raghunathan, M. and Pandya, M (eds). The Green Teacher.
4.	**Commonwealth of Learning (2006):**	Learning and Living with Technology, The Commonwealth of Learning and Millennium Development Goals [www.col.org].
5.	**Daniel, J (2006):**	Open and Distance Learning and Development, ICRISAT, Hyderabad, India.
6.	**Dietmar, B. and Katrin, H (2006):**	'From Environment Education to Education for Sustainable Development in Germany', Environment Education Research, Vol. 12, no: 1, pp.7-18, Routledge.

7. **De Haan, G. (2006):** "The BLK '21' programme in Germany, A model for Sustainable Development", Environment Education Research, Vol 12, no. 1, pp. 19-32, Routledge.

8. **Dash, D. and Satpathy, M.K. (2007):** Education for Sustainable Development" Role of College and Teacher Training Institutions, University News, Vol. 15, no: 7, pp. 1-8, December.

9. **Enslin, P. (1999):** "Education for a Liberal Democracy; Universalizing a Western Culture." Journal of Philosophy of Education, Vol. 33, no: 2, pp. 175-186.

10. **Fien, J. (1995):** "Teaching for a Sustainable World: The Environmental and Development Education Project for Teacher Education." Environmental Education Research, Vol: 1, no: 1, pp. 21-23, Routledge.

11. **Foster, J. (2001):** "Education as Sustainability", Environment Education Research, Vol. 7. no: 2, pp. 153-165.

12. **Ginkel, Van. H. (1998):** Preparing for a Sustainable Future: Higher Education and Sustainable Human Development, U.N. University, Tokyo.

13	**Hopkins, C. (1998):**	"The content of Education for Sustainable Development" in M.J. Sconllous, (Ed). Environment and Society: Education and Public Awareness for Sustainability; Thessaloniki International Conference, Paris, UNESCO.
14.	**IGNOU (2007):**	'Data Analysis' and Interpretation', Education Research, MES-016.
15.	**Jain, S and Gaonkar, M. (2007):**	'ICT-enabled In-Service Teacher Training in Environmental Education Online'. June issue.
16.	**Jensen, B.B., Schnack, K. (1994):**	Studies in Educational Theory and Curriculum, Vol. 12: Action and Action Competence as key concepts in Critical Pedagogy, Copenhagen; Royal Danish School of Educational Studies.
17.	**Longoworth, N ( ):**	Wiring Environmental Education, Journal of International Association of Universities (http//www.still.dost.gov.ph/ astinfo/ASTWEB/3rd 98/feature2html/).
18.	**Malebye, V.E. (2005):**	Learners' Understanding of the Impact of Air Pollution on the Environment in Rural Communities, M.Ed., Dissertation, University of Pretoria.

| 19. | **Nomura, K. (2004):** | Utilisation of IT/ICT for Environment Education; World School Network (http//www.wschool.net/). |

20. **Okinawa Statement (2003):** "Capacity Building in Science – The Basis for Sustainable Development", The Science Council of Japan and the participants of International Conference on IT – Based Capacity Building in Science, Okinawa, Japan, January 16-18, 2003.

21. **Pant, H (2007):** Environment Education of Teachers through Technology mediated open and distance learning, PCF5, London, U.K.

22. **Paas, L. (2008):** How Information and Communications Technologies can support Education for Sustainable Development. Current Uses and Trends [http://www.iisd.org].

23. **Scott, W. (2002):** 'Education and Sustainable Development: Challenges, responsibilities and frames of mind', Trumpeter, Vol. 18, no: 1, AU Press.

24. **Sauvé, L. (1999):** "Environment Education between Modernity and Post Modernity, searching for an Integrating Educational Framework." Canadian Journal of Environmental Education, Vol. 4, pp. 9-35.

25. **Tbilisi, UNESCO-UNEP (1977):** First Intergovernmental Conference of Environmental Education, Final Report, USSR.